

General information on local transit busdriving is available from:
 American Public Transit Association, 1201 New York Ave. NW., Suite 400, Washington, DC 20005. Internet: <http://www.apta.com>
 General information on motorcoach driving is available from:
 United Motorcoach Association, 113 S. West St., 4th Floor, Alexandria, VA 22314. Telephone (toll free): 1-800-424-8262. Internet: <http://www.uma.org>

Material Moving Equipment Operators

(O*NET 97902, 97905, 97908, 97911, 97914, 97917, 97921, 97923A, 97923B, 97926, 97928, 97932, 97935, 97941, 97944, 97947, 97951, 97953, and 97989A)

Significant Points

- Most workers acquire their skills on the job.
- Workers in these occupations often have high pay rates, but seasonal work may reduce earnings.

Nature of the Work

Material moving equipment operators use machinery to move construction materials, earth, petroleum products, and other heavy materials. Generally, they move materials over short distances—around a construction site, factory, or warehouse. Some move materials on or off trucks and ships. Operators control equipment by moving levers or foot pedals, operating switches, or turning dials. They may also set up and inspect equipment, make adjustments, and perform minor repairs when needed.

Material moving equipment operators are classified by the type of equipment they operate. Each piece of equipment requires different skills to move different types of loads. (For information on *operating engineers, paving and surfacing equipment operators, and grader, bulldozer, and scraper operators* see the statement on construction equipment operators, elsewhere in the *Handbook*.)

Industrial truck and tractor operators drive and control industrial trucks or tractors equipped with lifting devices, such as a forklift or boom, and trailer hitches. A typical industrial truck, often called a forklift or lift truck, has a hydraulic lifting mechanism and forks. Industrial truck operators use these forks to carry loads on a skid, or pallet, around a factory or warehouse. They also pull trailers loaded with materials, goods, or equipment within factories and warehouses, or around outdoor storage areas.

Excavation and loading machine operators dig and load sand, gravel, earth, or similar materials into trucks or onto conveyors using machinery equipped with scoops, shovels, or buckets. Construction and mining industries employ virtually all *excavation and loading machine operators*.

Crane and tower operators lift materials, machinery, or other heavy objects. They extend or retract a horizontally mounted boom to lower or raise a hook attached to the loadline. Most operators coordinate their maneuvers in response to hand signals and radioed instructions. Operators position the loads from the on-board console or from a remote console at the site. While crane and tower operators are noticeable at office building and other construction sites, the biggest group works in primary metal, metal fabrication, and transportation equipment manufacturing industries that use heavy, bulky materials.

Hoist and winch operators control movement of cables, cages and platforms to move workers and materials for construction, manufacturing, logging and other industrial operations. They also lube and maintain the drum and cables and make other minor repairs. One half of all jobs for hoist and winch operators were found in manufacturing or mining industries.

Other material moving equipment operators tend air compressors or pumps at construction sites, or operate oil or natural gas pumps and compressors at wells and on pipelines. Some operate

ship loading and unloading equipment, conveyors, hoists, and other specialized material handling equipment such as mine or railroad tank car unloading equipment.

Material moving equipment operators may keep records of materials moved, and do some manual loading and unloading. They also may clean, fuel, and service their equipment.

Working Conditions

Many material moving equipment operators work outdoors in every type of climate and weather condition. Industrial truck and tractor operators work mainly in warehouses or manufacturing plants. Some machines are noisy and shake or jolt the operator. These jobs have become much safer with overhead guards on forklift trucks and other safety equipment. As with most machinery, most accidents can be avoided by observing proper operating procedures and safety practices.

Employment

Material moving equipment operators held about 808,000 jobs in 1998. They were distributed among the detailed occupation groups as follows:

Industrial truck and tractor operators	415,000
Excavation and loading machine operators	106,000
Crane and tower operators	49,000
Hoist and winch operators	11,000
All other material moving equipment operators	228,000



Material moving equipment operators move materials around a construction site, factory, or warehouse.

The largest proportion—36 percent—of material moving equipment operators worked in manufacturing. Most of these were industrial truck and tractor operators. Over 33 percent of all material moving equipment operators worked in transportation, public utilities, wholesale trade or retail trade industries. Significant numbers of material moving equipment operators also worked in construction, mining, and service industries. A few material moving equipment operators were self-employed.

Material moving equipment operators work in every part of the country. Some work in remote locations on large construction projects, such as highways and dams, or in factory or mining operations.

Training, Other Qualifications, and Advancement

Material moving equipment operators usually learn their skills on the job. Operators need a good sense of balance, distance judgment, and eye-hand-foot coordination. Employers of material moving equipment operators prefer high school graduates, although some equipment may require less education to operate. Mechanical aptitude and high school training in automobile or diesel mechanics are helpful because workers may perform some maintenance on their machines. Experience operating mobile equipment, such as farm tractors or heavy equipment in the Armed Forces, is an asset.

As part of an on-the-job apprenticeship, beginning material moving equipment operators handle light equipment under the guidance of an experienced operator. Later, they may operate heavier equipment such as cranes.

Private vocational schools offer instruction in the operation of certain types of material moving equipment. Completion of such a program may help a person get a job as a trainee or apprentice. However, persons considering such training should check the reputation of the school among employers in the area.

Job Outlook

Employment of material moving equipment operators will increase slower than the average for all occupations through 2008. The expected growth stems from an expanding economy and increased spending on the Nation's infrastructure of highways, bridges, and dams. However, equipment improvements, including the growing automation of material handling in factories and warehouses, continue to raise productivity and moderate the demand for skilled operators. In addition to employment growth in this large occupation, many jobs will open up because of the need to replace experienced workers who transfer to other occupations or leave the labor force.

Job growth for material moving equipment operators largely depends on growth in the industries employing them. Employment of operators in manufacturing will decline in tandem with overall industry employment. Employment in construction will grow faster than the average for all occupations, due to the demand for construction related excavation and loading machine operators who prepare new sites for construction. Employment will also grow rapidly in temporary help organizations and companies that lease equipment.

Growth of industrial truck and tractor operators, the largest occupation in this group, will be slower than the average for all occupations. Growth of industrial truck and tractor operators will be constrained by technological improvements. Some firms use computerized dispatching or onboard data communication devices to enable industrial truck and tractor operators to move and track goods more efficiently. In other firms, industrial trucks and tractors may be replaced by computer-controlled conveyor systems, overhead handling systems, or automated vehicles that do not require operators. Employment of hoist and winch operators will grow slowly and crane and tower operators will have little or no growth as precision computerized controls and robotics automate their work in manufacturing and some other industries.

Both construction and manufacturing are very sensitive to changes in economic conditions, so the number of job openings for operators in these industries may fluctuate from year to year.

Earnings

Median annual earnings of industrial truck and tractor operators were \$23,360 in 1998. The middle 50 percent earned between \$19,170 and \$29,760 a year. The lowest 10 percent earned less than \$15,410 and the highest 10 percent earned more than \$37,670 a year. Median annual earnings in the industries employing the largest number of industrial truck and tractor operators in 1997 were as follows:

Motor vehicles and equipment	\$35,300
Trucking and courier services, except air	26,600
Groceries and related products	22,800
Public warehousing and storage	21,300
Personnel supply services	20,700

Median annual earnings of excavation and loading machine operators were \$27,090 in 1998. The middle 50 percent earned between \$22,240 and \$35,580 a year. The lowest 10 percent earned less than \$18,620 and the highest 10 percent earned more than \$46,140 a year.

Median annual earnings of crane and tower operators were \$30,510 in 1998. The middle 50 percent earned between \$24,340 and \$38,270 a year. The lowest 10 percent earned less than \$20,560 and the highest 10 percent earned more than \$46,680 a year.

Median annual earnings of hoist and winch operators were \$28,030 in 1998. The middle 50 percent earned between \$21,120 and \$36,400 a year. The lowest 10 percent earned less than \$17,370 and the highest 10 percent earned more than \$45,260 a year.

Pay usually is higher in metropolitan areas. Seasonal work may reduce earnings.

Related Occupations

Other workers who operate mechanical equipment include railroad yard workers, truck and bus drivers, construction equipment operators, and farm equipment operators.

Sources of Additional Information

Local State employment service offices may provide information about job opportunities and training programs.

Information on industrial truck and tractor operators is available from:

- ☛ Industrial Truck Association, 1750 K St. NW., Suite 460, Washington, DC 20006.
- ☛ Specialized Carriers and Rigging Association, 2750 Prosperity Ave., Suite 620, Fairfax, VA 22301.

Rail Transportation Occupations

(O*NET 97302, 97305, 97308, 97311, 97314, 97317A, 97317B, 97399A, and 97399B)

Significant Points

- Overall employment in the railroad transportation industry is expected to decline due to productivity gains.
- Employment of locomotive engineers and subway and streetcar operators is projected to grow slowly, and in all other rail transportation occupations it is projected to decline.
- Over 8 out of 10 rail transportation workers are members of unions and many have relatively high earnings.